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AMSAT NEWS SERVICE
ANS-001

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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ANS-001 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 001.01
>From AMSAT HQ KENSINGTON, MD.
January 01, 2017
To All RADIO AMATEURS
BID: $ANS-001.01

## Tomsk-TPU-120 CubeSat to deploy during EVA

The amateur radio CubeSat Tomsk-TPU-120 may be deployed during a Russian spacewalk (EVA) in July 2017.

The satellite was developed by students at the Tomsk Polytechnic University to test new space materials technology and is the world’s first space vehicle with a 3D-printed structure. It was launched from Baikonur in Kazakhstan to the ISS on March 31, 2016 in a Progress-MS-2 cargo vessel.

It will be deployed by hand during a Russian spacewalk, which is why unlike other CubeSats this one has a handle. The call sign of the satellite is RS4S.

According to Alexey Yakovlev, head of the Tomsk Polytechnic University’s Institute of High Technologies, the 3D printed satellite is something of a landmark for additive manufacturing, being the

first example of a fully 3D printed satellite: “The Tomsk-TPU-120 is the first such project in the world, in which the entire casing of a satellite is fully 3D printed using dynamic modeling,” Yakovlev recently told Sputnik. “The combination of these technologies can significantly reduce the development time and the number of full-scale tests, find new engineering solutions, and reduce the project’s cost.”

In May 2016 the Tomsk Polytechnic University celebrated its 120th anniversary. As part of the celebrations on May 10/11 the Tomsk-TPU-120 was activated in the ISS and transmitted a greeting to Earth inhabitants, recorded by students of the university in 10 languages: Russian, English, German, French, Chinese, Arabic, Tatar, Indian, Kazakh and Portuguese.

The greeting message was transmitted once a minute on 437.025 MHz FM. A Kenwood transceiver on the ISS provided a cross-band relay, re-transmitting the signal on 145.800 MHz FM.

Read the 3ders article at
http://tinyurl.com/ANS001-3darticle

Sputnik News – Unique 3D-Printed Siberian Satellite to Orbit Earth
http://tinyurl.com/ANS001-3D/

ISS Calendar http://spaceflight101.com/iss/iss-calendar/

Tomsk-TPU-120 CubeSat Video http://tinyurl.com/ANS001-Tomsk-TPU-120

[ANS thanks AMSAT-UK for the above information]

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New Amateur Radio FM Transponder CubeSat Now in Space

The BY70-1 CubeSat launched on December 28 from the Taiyuan Space Launch Center in China, but in a lower orbit than intended. The satellite carries an Amateur Radio FM transponder.

BY70-1 was intended to go into a 530-kilometer (approximately 329-mile) circular Sun-synchronous orbit, but it appears the orbit is 524 x 212 kilometers, which will give the spacecraft an orbital lifetime of just a month or two.

Paul Stoetzer, N8HM, reported working Wyatt Dirks, AC0RA, through the FM transponder during the 1709 UTC pass on December 28. "Uplink requires precise frequency adjustment, and there's a delay on the downlink, but the signal is strong," Stoetzer said.

BY70-1 is a 2U CubeSat project for education and Amateur Radio. It features 3-axis stabilization and deployable solar panels. In addition to the FM transponder, BY70-1 has a camera, and plans call for downloading images and telemetry via a 9600 bps BPSK downlink. The IARU Amateur Satellite Frequency Coordination pages list an uplink of 145.920 MHz, and a downlink of 436.200 MHz.

AMSAT-UK has more information online at,
http://tinyurl.com/ANS001-AMSAT-UK-BY70

[ANS thanks ARRL for the above information]

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Background info on launch problems for BY70-1

On Dec 28 China launched a CZ-2D from Taiyuan - the first time the 2D model has flown from their southern launch site. However, the rocket appears to have run into problems and achieved orbit with an underspeed of 100 m/s, making a 212 x 520 km orbit instead of a circular 500 km one.

The main payloads are Gaojing 1 and 2, two commercial high resolution (0.5m) imaging satellites also called SuperView 1 and 2. The satellites are owned by Beijing Aerospace World View Information Technology Co., Ltd (also called Beijing Space View Tech Co.Ltd.); the US company DigitalGlobe is a major investor.

Also aboard was BY70-1, or Bayi kepu weixing 01 xing, a 2U cubesat with an amateur radio payload developed by high school students at the PLA-related Beijing Bayi School.

[ANS thanks Jonathan's Space Report, No. 733 for the above information]

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Possible Satellite Activity Galapagos Islands

HC8, GALAPAGOS ISLANDS. Geoff, G8OFQ, will once again be active as HC8/G8OFQ from Isabela Island (SA-004) between August 1st and October 31st, 2017. Activity will be on 160-6 meters using SSB only. There is a possibility of some satellite activity on 2m and 70cm SSB. Geoff is there working as a volunteer for the Galapagos National Park at the Giant Tortoise Breeding Center (see pictures on QRZ.com) on Isabela Island. QSL via G8OFQ: Geoff Dobson, 9 Fitzpain Road, Ferndown, Dorset, BH22 8RZ, United Kingdom. Also LoTW on request.

[ANS thanks Ohio/Penn DX Bulletin #1297 for the above information]

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CONTACT! via UHF ISS digipeater using Kenwood TH-D72

I made CONTACT! Through the UHF ISS digipeater using my Kenwood TH-D72

View the video at:
https://www.facebook.com/SpaceComms/videos/1342108185861041/

This was my second contact through the ISS digipeater. I actually contacted the same station I contacted in this video, W8LR, three days before, but I wasn't recording any video.
For this video I recorded the audio from my Kenwood TH-D72a and later played it back to Soundmodem+UISS. Soundmodem decodes many more packets than my radio does. I made a screen capture of UISS and its map so you can see the complete details of every received packet.
Another thing this video shows is how hard it can be to track a near overhead pass (close to 90 degrees elevation). When I was beginning in satellites I only tried to work overhead passes because I knew the signal would be strongest when the satellite was closest to me. While that is true, the closer the satellite is to you the faster its

relative speed is. When it passes overhead it switches from coming towards you to going away from you very fast, and drops 10s of degrees in seconds. That makes the satellite very easy to lose track of.

In this video I got distracted while changing settings on my radio and lost the ISS after it went overhead. It didn't help that I was using a tripod for the first time. I prefer to hold the antenna in my hand precisecly because I find it's easier to track, as I can make quick adjustments and listen for the signal going up and down. To control the radio for packet, it helps to have two hands. See my previous UHF ISS digi video to see how hard it is to change settings with one hand.

Here is the very appropriate QSL card I got from W8LR for my first ISS digi contact:
http://imgur.com/vUfwkiE
http://imgur.com/DIq7fD4

Here are all the stations I heard on the pass from this video (time stamps GMT -5)
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N4ZQ 12/18/2016 11:08:08 System time
KG4AKV-5 12/18/2016 11:08:13
W8LR 12/18/2016 11:09:02
KC4LE 12/18/2016 11:09:17
W0NBC 12/18/2016 11:11:07
RS0ISS 12/18/2016 11:11:38
W4TBD-6 12/18/2016 11:12:14
KA8YES-6 12/18/2016 11:12:52
Total Stations = 8

The music at the end is "Jubilee - Opa--locka"

You can subscribe to John's SpaceComms YouTube Channel at:
https://www.youtube.com/SpaceComms1?sub_confirmation=1

[ANS Thanks John KG4AKV for the above information]

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AMSAT CW Activity Day

January 1, 2017 (UTC) will be AMSAT's first annual CW Activity Day!

As with the old Straight Key Night, this is a fun event, not a contest. It will run for 24 hours on January 1, 2017 (UTC).

All forms of CW are welcome, -- straight keys, bugs, keyers, even keyboards and decoders.  Since it is not a contest, there is no required exchange.  A QSO is a QSO. Working the same station on more than one satellite is permitted.

Instead of submitting Best Fist nominations, all participants are asked to post their results, including "Soapbox" comments, to AMSAT-BB.  Please include the satellites you used, and the number of CW QSOs you had on each.  While it is not necessary to post your full log, you may do so if you wish.

[ANS thanks Ray W2RS for the above information]

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ARISS News

+ A Successful contact was made between Primary School Georges Wallers, Saint-Amand-les-Eaux (59), France and Astronaut Thomas Pesquet KG5FYG using Callsign FXØISS. The contact began Sat 2016-12-31 11:31:12 UTC and lasted about nine and a half minutes. Contact was direct via F4KJV. ARISS Mentor was Joseph F6ICS.

Upcoming ARISS Contact Schedule

Collège Mathilde Marthe  Faucher, Allassac, France, direct via F1IMF. The ISS callsign is presently  scheduled to be FXØISS. The scheduled astronaut is Thomas Pesquet  KG5FYG
Contact is a go for: Wed 2017-01-04 11:16:26 UTC

Rainbow Middle School, Rainbow City, AL, direct via K4JMC. The ISS callsign is presently scheduled to be NA1SS. The scheduled  astronaut is Shane Kimbrough KE5HOD
Contact is a go for: Wed 2017-01-04  17:29:40 UTC

[ANS thanks ARISS, Charlie AJ9N and David AA4KN for the above information]

[ANS thanks ARISS, Charlie AJ9N information]

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Satellite Shorts From All Over

+ Amateur Radio Kids Day January 7

  Organized by the ARRL Kids day, scheduled this year for January 7 is meant to develop interest in Amateur Radio. Please consider this while operating the satlleite January 7. Listen for kids on-the-air or plan to assist kids with operating the satellites. For more information visit http://www.arrl.org/kids-day.

  [ANS thanks the ARRL for the above information]

+ ANS Seeks Rotating Editors

  The AMSAT News Service (ANS) seeks additional volunteers to serve as rotating editors. The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

  If you are interested in serving AMSAT-NA in this important and rewarding role, please contact Lee McLamb, KU4OS:
  ku4os at amsat dot org.

  [ANS thanks the ANS editorial staff for the above information]

+ The AMSAT News Service editors wish you and yours a prosperous and safe 2017.

[ANS thanks Lee KU4OS, Joe K6WAO and EMike AA8EM for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,
This week's ANS Editor,
EMike McCardel, AA8EM
aa8em at amsat dot org